

AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions of claims in the application.

Listing of Claims:

1-6. (canceled)

7. (currently amended) A method for adjusting the gain of a Low Noise Amplifier (LNA) in an RF unit that includes the LNA, a mixer coupled to the output of the LNA, a Band Pass Filter (BPF) coupled to the output of the mixer, a first received signal strength indicator-~~(RSSI_A)~~ coupled to measure the wideband signal strength at the output of the mixer, and a second received signal strength indicator-~~(RSSI_B)~~ coupled to measure the narrowband signal strength after the BPF, the method comprising:

determining that a signal of interest is not present in a received RF signal present at an input of the LNA;

measuring wideband signal strength indication (RSSI_A) by use of the first received signal strength indicator at the output of the mixer-~~(RSSI_A)~~;

~~measuring narrowband signal strength after the BPF (RSSI_B);~~

~~adjusting a gain (the LNA gain) of the LNA;~~

~~determining that intermodulation interference exists by:~~

~~adjusting the LNA gain by a gain adjustment step;~~

~~measuring again a signal strength after the BPF (RSSI_B'); and~~

~~determining that the difference between RSSI_B and RSSI_B' is not linearly related to the gain adjustment step; and~~

~~adjusting the gain of the LNA based upon the existence of the intermodulation interference to cause the mixer to operate linearly~~

determining if mixer non-linearity is present based upon RSSI_A;

reducing gain of the LNA if mixer non-linearity is present based upon RSSI_A,
until the mixer is no longer driven into non-linearity;

determining if RSSI_A exceeds a predefined threshold (THUR_B) that will cause the mixer to operate in an upper range of mixer operation;

measuring narrowband signal strength indication (RSSI_B) by use of the second received signal strength indicator after the BPF if RSSI_A exceeds the predefined threshold;

determining if intermodulation interference is present by using RSSI_B;

optimizing a signal-to-interference ratio of the mixer by setting the gain of the LNA to have the mixer operate significantly within its linear region of operation, if intermodulation interference is detected; and

setting the gain of the LNA so that RSSI_B exceeds a predetermined minimum, in which a combination of RSSI_A and RSSI_B based gain adjustments of the LNA is employed to compensate for intermodulation interference.

8. ~~The method of claim 7, wherein determining that the difference between RSSI_B and RSSI_B' is not linearly related to the gain adjustment step is determined by comparing the difference between RSSI_B and RSSI_B' to a threshold that is based upon the LNA gain determining intermodulation interference includes adjusting the gain of the LNA by a gain adjustment step to measure a second RSSI_B (RSSI_B') to determine if a difference between RSSI_B and RSSI_B' is not linearly related to the gain adjustment step.~~

9-16. (canceled)

17. (currently amended) A Radio Frequency unit comprising:

a transmit/receive block coupled to an antenna;

transmit circuitry that receives Intermediate Frequency (IF) transmit data from a host device, that converts the IF transmit data to an RF transmit signal and that couples the RF transmit signal to the transmit/receive block for transmission;

a Low Noise Amplifier (LNA) operably coupled to the transmit/receive block to receive an RF receive signal;

a mixer coupled to receive an output of the LNA;

a Band Pass Filter (BPF) coupled to an output of the mixer;

a first received signal strength indicator coupled to the output of the mixer that indicates a wideband signal strength indication (RSSI_A);

a second received signal strength indicator coupled after the BPF that indicates a narrowband signal strength indication (RSSI_B); and

an LNA gain adjustment block that operates to:

~~record RSSI_B;~~

~~adjust the LNA gain by a gain adjustment step;~~

~~record a new RSSI_B (RSSI_B'); and~~

~~determine that the difference between RSSI_B and RSSI_B' is not linearly related to the gain adjustment step, such determination indicating the presence of intermodulation interference.~~

~~adjust the gain of the LNA based upon the existence of the intermodulation interference to cause the mixer to operate linearly~~

reduce gain of the LNA if mixer non-linearity is present based upon RSSI_A, until the mixer is no longer driven into non-linearity;

optimize a signal-to-interference ratio of the mixer by setting the gain of the LNA to have the mixer operate significantly within its linear region of operation, if intermodulation interference is detected by RSSI_B, when RSSI_A exceeds a predefined threshold (THUR_B) to place the mixer to operate in an upper range of mixer operation; and

set the gain of the LNA so that RSSI_B exceeds a predetermined minimum, in which a combination of RSSI_A and RSSI_B based gain adjustments of the LNA is employed to compensate for intermodulation interference.

18. The Radio Frequency unit of claim 17, wherein ~~in determining that intermodulation interference exists, the LNA gain adjustment block compares the difference between RSSI_B and RSSI_B' to a threshold that is based upon the LNA gain~~ the LNA gain adjustment block adjusts the gain of the LNA by a gain adjustment step to determine if a difference between a second RSSI B (RSSI B') and RSSI B is not linearly related in order to detect intermodulation interference.

19-28. (canceled)